



PC 5152

15.1-inch sunlight readable touch panel PC

Installation Guide

PC 5152: 15.1-inch Pentium 4 1024x768
sunlight readable touch panel PC

2.3 Motherboard

The PC 51X2 flat screen PC contains a 9455 motherboard. The motherboard is the heart of any computer and is responsible for transmitting, receiving and processing data as well as driving the different on-board devices. This chapter gives a brief introduction to the 9455 motherboard. For more complete details on the connectors and the different implementations of the 9455, please refer to the 9455 user manual.

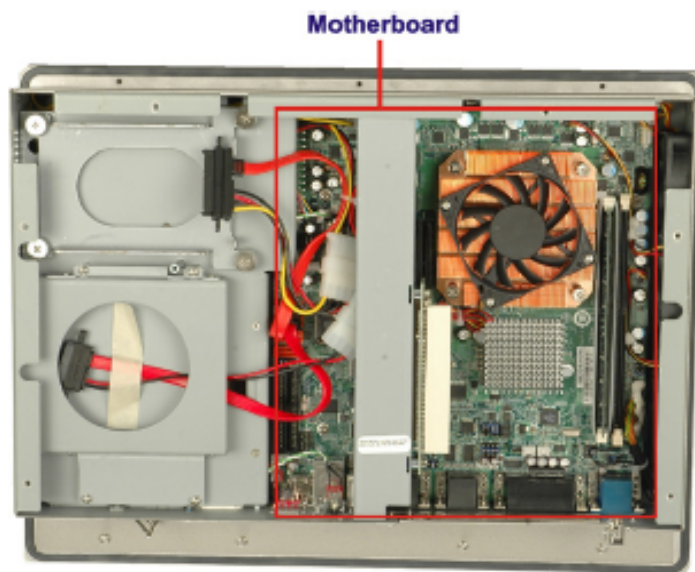


Figure 2-4: 9455 Motherboard

2.4 CPU Support

The 9455 installed in the PC 51X2 supports LGA775 Intel® Core™2 Duo, Pentium® 4, Pentium® D and Celeron® D processors.

2.5 System Chipsets

The following chipsets are preinstalled on the board:

- ③ **Northbridge:** Intel® 945G
- ③ **Southbridge:** Intel® ICH7



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Specifications of these two chipsets are listed in the subsections below.

2.5.1 Intel® 945G Northbridge Chipset

The Intel® 945G Northbridge chipset comes with the following features:

- ③ Supports the Intel Pentium 4 processor and Intel Celeron processor with Intel NetBurst® microarchitecture
- ③ 400 MHz or 533 MHz system bus delivers a high-bandwidth connection between the processor and the platform
- ③ Integrated graphics utilizing Intel® Extreme Graphics 2 technology
- ③ Display
 - Analog display support
 - Dual independent pipe support
 - DVO (DVOB and DVOC) support
 - Dedicated Local Flat Panel (LFP) LVDS interface
- ③ Intel® Embedded Graphics Drivers
 - Graphics interface support
 - Multi-monitor support
 - Dynamic display-mode support
 - Embedded video BIOS

2.5.2 ICH7 Southbridge Chipset

The ICH7 Southbridge chipset comes with the following features:

- ③ PCI Bus Interface
 - New: Supports PCI Revision 2.3 Specification at 33 MHz
 - 6 available PCI REQ/GNT pairs
 - One PCI REQ/GNT pair can be given higher arbitration priority (intended for external 1394 host controller)
 - Support for 44-bit addressing on PCI using DAC protocol
- ③ Integrated LAN Controller
 - Integrated ASF Management Controller
 - WfM 2.0 and IEEE 802.3 Compliant
 - LAN Connect Interface (LCI)
 - 10/100/1000 Mbit/sec Ethernet Support



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- ③ Integrated Serial ATA Host Controllers
 - Independent DMA operation on two ports.
 - Data transfer rates up to 1.5 Gb/s (150 MB/s).
- ③ Integrated IDE Controller
 - Supports “Native Mode” Register and Interrupts
 - Independent timing of up to 4 drives
 - Ultra ATA/100/66/33, BMIDE and PIO modes
 - Tri-state modes to enable swap bay
- ③ Interrupt Controller
 - Supports up to 8 PCI interrupt pins
 - Supports PCI 2.3 Message Signaled Interrupts
 - Two cascaded 82C59 with 15 interrupts
 - Integrated I/O APIC capability with 24 interrupts
 - Supports Front Side Bus interrupt delivery
- ③ High-Precision Event Timers
- ③ 1.5 V operation with 3.3 V I/O
 - 5 V tolerant buffers on IDE, PCI, USB Overcurrent and Legacy signals
- ③ Integrated 1.5 V Voltage Regulator (INTVR) for the Suspend wells
- ③ Enhanced DMA Controller
 - Two cascaded 8237 DMA controllers
 - PCI DMA: Supports PC/PCI — Includes two PC/PCI REQ#/GNT# pairs
 - Supports LPC DMA
 - Supports DMA Collection Buffer to provide Type-F DMA performance for all DMA channels
- ③ Real-Time Clock
 - 256-byte battery-backed CMOS RAM
 - Integrated oscillator components
 - Lower Power DC/DC Converter implementation

2.6 Graphics Support

The ATI M690T Northbridge chipset has an integrated graphics engine that supports the following display devices:

- ③ Analog CRT
- ③ Digital LVDS



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2.6.1 Analog CRT Support

The VGA port connects a peripheral monitor to the PC 51X2 system. A DB-15 VGA connector on the external peripheral interface connector panel is interfaced to the Intel® 945G Northbridge. The Intel® 945G supports analog CRT monitors with the following features:

- ③ Supports max DAC frequency up to 400 MHz
- ③ 24-bit RAMDAC support
- ③ DDC2B compliant
- ③ Up to 2048 x 1536 mode support

2.6.2 LVDS Support

The LVDS connector drives the built-in LCD panel. The 30-pin LVDS crimp connector is connected to the Chrontel CH7308B chipset, which is connected to the Intel® 945G through the SDVO interface.

- ③ 18/24-bit outputs
- ③ Up to 140 megapixels per second

2.7 Memory

All processors supported by the PC 51X2 have their own internal DDR2 memory controller. The DDR2 controller has the following features:

- ③ Low-latency, high-bandwidth
- ③ 800 MHz 128-bit DDR2 SDRAM controller
- ③ Supports one un-buffered DDR2 SO-DIMM
- ③ Each SO-DIMM has a maximum capacity of 1.0 GB

The DDR2 controller on the processor is interfaced to one SO-DIMM socket on the PC 51X2 .

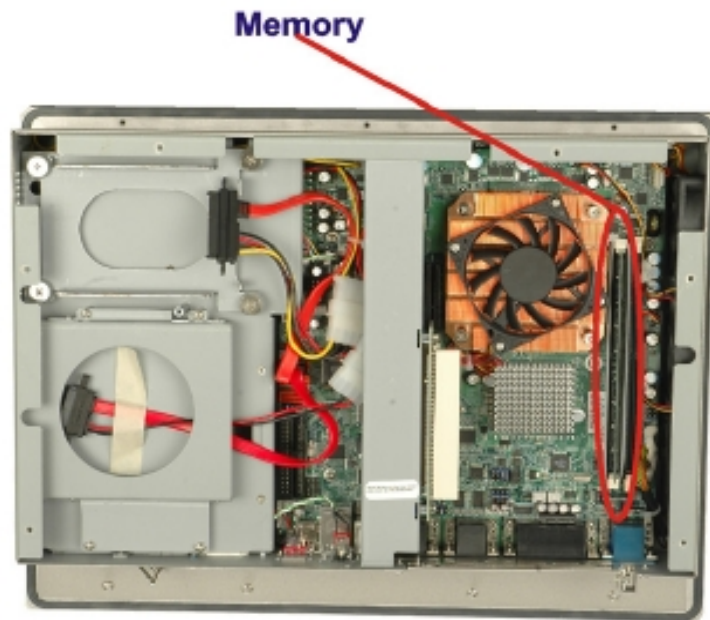


Figure 2-5: SO-DIMM Socket

2.8 Storage

The following storage options are available:

- ③ CompactFlash®
- ③ SATA hard drive

2.8.1 CompactFlash®

The CompactFlash® socket supports standard CompactFlash® Type I and CompactFlash® Type II cards. The chipset flash interface is multiplexed with an IDE interface and can be connected to an array of industry standard NAND Flash or NOR Flash devices. The CompactFlash® slot location is shown below.

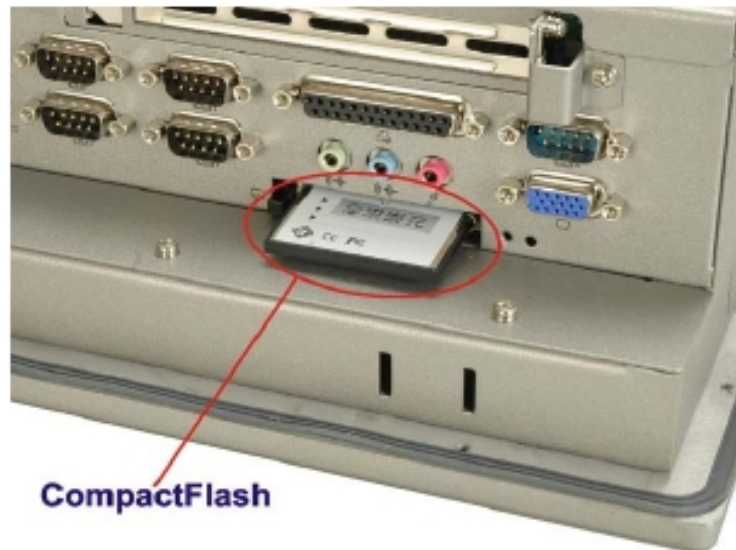


Figure 2-6: CompactFlash® Slot

2.8.2 SATA Hard Drive

The integrated SATA controller supports two SATA drives with independent DMA operations. One SATA port is implemented internally for the internal 2.5" SATA hard drive. The second SATA port is implemented on the external connector panel through an eSATA connector. SATA controller specifications are listed below.

- ③ Supports two SATA drives
- ③ Supports 3.0 Gb/s data transfer speeds
- ③ Supports SerialATA Specification, Revision 1.0a

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Hard Drive



Figure 2-7: SATA Hard Drive Slot

2.9 Expansion Slots

The PC 51X2 includes either a PCI or PCIe x4 expansion card slot. The expansion card slots add additional functionality to the PC 51X2.

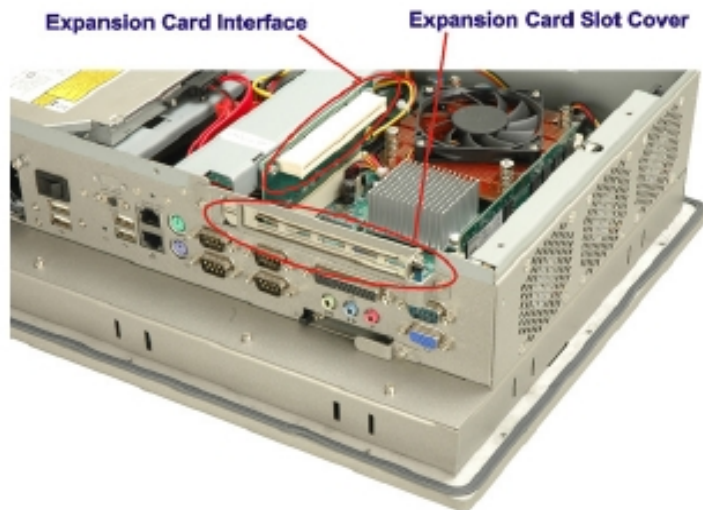


Figure 2-8: Expansion Card Slot

PCI cards available for the PC 51X2 include:

- ③ SCSI adapter cards

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- ③ Ethernet adapter cards
- ③ Modem cards
- ③ Sound cards

PCIe x4 cards available for the PC 51X2 include:

- ③ Gigabit Ethernet adapter cards
- ③ SATA II / RAID controller cards
- ③ TV tuner cards
- ③ Graphics cards
- ③ Firewire & USB cards

2.10 External Device Connectors

The external device connectors allow external components to be attached to the PC 51X2. The external communications device connectors are shown in the sections below.

2.10.1 USB 2.0 Ports

USB connections provide fast data transmission to external devices including USB flash disks.



Figure 2-9: USB Ports

Some of the features of the USB ports include

- ③ USB 2.0 compliant
- ③ Support for low speed (1.5 Mb/s), full speed (12 Mb/s) and hi-speed (480 Mb/s) USB devices
- ③ Hotplugging capabilities

2.10.2 Serial Ports

Serial ports provide communications to external devices. Four of the external serial ports provide short-range communications, while one provides for longer range communication.

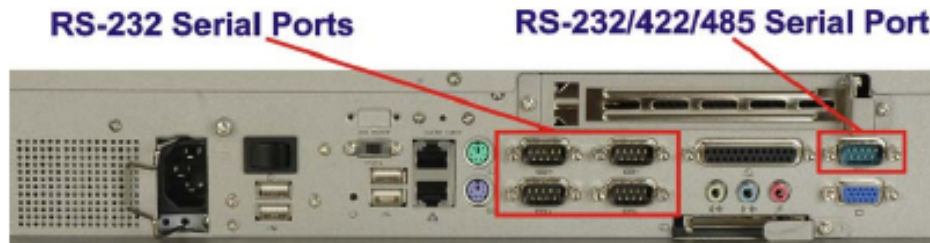


Figure 2-10: Serial Ports

Some features of the serial ports include:

- ③ RS-232 transmission protocol for easy connection to devices with a standard RS-232 interface
- ③ RS-422 and RS-485 transmission capabilities for longer distance connections.

2.10.3 Parallel Port

The parallel port can be programmed for machine control, or used in the standard setup for parallel port printers and other devices that use a standard parallel port.



Figure 2-11: Parallel Port

Some of the features of the parallel port include:

- ③ Programmable pin functions for customized applications

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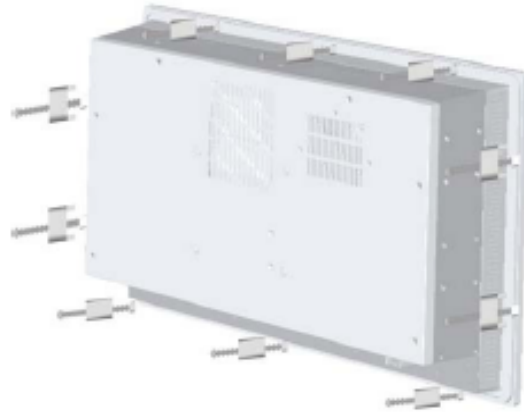


Figure 4-21: Panel Mounting Clamp Positions

Step 5: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 4-22**).

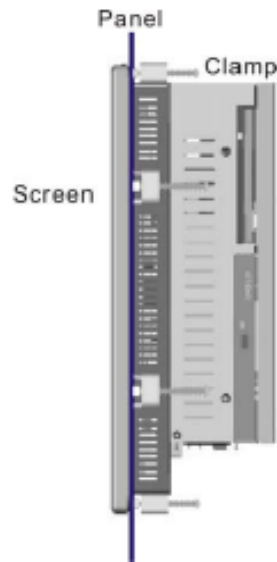


Figure 4-22: Tighten the Panel Mounting Clamp Screws

4.7.3 Rack and Cabinet Installation

To mount the PC 51X2 into a rack/cabinet, please follow the steps below.